

REMARKS

Claims 1-20 are pending in the present application. The Examiner rejected claims 1-10, and did not address claims 11-20. As the Applicant is not aware of any restriction requirement, claims 11-20 are thought to be ready for examination and allowance.

Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, the Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the office action of March 8, 2006 the following actions were taken:

- (1) Examiner objected to the specification because "the claimed aspect in Claim 6 of an open cavity that is partially defined by the build material and partially open to a surface of the three-dimensional object does not appear to be disclosed in the specification."
- (2) Claim 6 was rejected under 35 U.S.C. 112 as failing to comply with the written description requirement.
- (3) Claims 1-10 were rejected under 35 U.S.C. 102(b) as being anticipated by Ryan et al (WO 98/21626, hereinafter "Ryan").

It is respectfully submitted that the presently pending claims be examined and allowed. The Applicant submits that each and every amendment herein is fully supported by the specification as originally filed, and that no new matter has been added.

Objection to the specification

The Examiner objected to the specification as not properly disclosing the claimed aspect in claim 6. As such, the specification is herein amended to specifically include the claimed subject matter of claim 6. Applicant, therefore, respectfully submits that the specification does contain proper support for the subject matter of claim 6, and requests reconsideration on this matter and removal of the rejection.

Rejection under 35 U.S.C. § 112, first paragraph

The Examiner rejected claim 6 under 35 USC § 112, first paragraph, as containing subject matter not described in the specification. As the specification has been amended herein to include the subject matter of claim 6 in the detailed description section of the specification, the Applicant believes the subject matter of claim 6 to be fully supported in the specification and respectfully requests reconsideration and removal of this rejection.

Rejections under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1-10 under 35 U.S.C. 102(b) as being anticipated by Ryan. Before discussing these rejections, it is thought proper to briefly state what is required to sustain such a rejection. It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987). In order to establish anticipation under 35 U.S.C. 102, all elements of the claim must be found in a single reference. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), *cert. denied* 107 S.Ct. 1606 (1987). In particular, as pointed out by the court in *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1981), *cert denied*, 469 U.S. 851 (1984), "anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference." "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Ryan does not teach all of the elements of claim 1. As claims 2-9 depend from claim 1, they, too, are not anticipated by Ryan. The Examiner noted that Ryan teaches a relief forming polymer "also forming a feature that imparts a predetermined property of retention within the three-dimensional object; the three dimensional object also therefore comprises embedded features" (underlining added). The predetermined property of the Ryan reference is retention. However, as per the claim itself, the support material is deposited to support the build material and to impart a predetermined property. By the language of the claim, then, the predetermined property cannot be support; the material must offer something in addition to the

support. This being stated, the above-recited non-narrowing amendment is provided merely to clarify this point, i.e. that the predetermined property must be other than mere support under a standard claim construction analysis.

As the relief forming polymer in Ryan does not offer any property other than support, it cannot anticipate the present invention. The Examiner further argues, in the analysis and rejection of claims 7 and 8, that Ryan discloses the feature of color and conductance. The Applicant respectfully submits that Ryan does not teach, disclose, or even suggest that the material analogous to the support material of the present invention has a predetermined property as claimed in claim 1. The colored catalyst and conductivity enhancement noted by the Examiner is with reference to a material the Examiner compares to the build material of the present invention. Therefore, it is the build material of the Ryan reference that imparts color and conductivity enhancement, not the support material, as required in the claims. Support material is distinguishable from build material as it is designed to be easily removable when present in a location where it is used merely for support.

Further understanding of the distinctions between Ryan and the present invention can be understood through a brief discussion of the materials used in each. The first claim of the present invention requires a “support material configured to be deposited adjacent to the build material for supporting the build material during formation of the three-dimensional object, said support material also being configured to form a feature that imparts a predetermined property, other than support, within the three-dimensional object.” By definition in the specification, the support material has the primary purpose “of supporting overhangs of a solid three-dimensional object during the build process” (see para [0018]), yet may be deposited so as to “remain within the three dimensional object as a more permanent feature” (see para [0018]) when the configuration of the build material allows for this to occur, e.g., a cavity or opening within the build material is present.

The Examiner compares this support material to the relief forming polymer material of the Ryan reference. The Ryan reference notes that the relief forming polymer material forms the second and sometimes first layers. Most references to the use of the relief forming polymer are in use to form relief structures wherein a build material can be placed or applied. Ryan then presents a third layer, which the

Examiner compares to the build material of the present invention. In Ryan, the third layer material is often referred to as functionalizing material.

In reference to a third layer, Ryan notes “metals or polymers may be coated or rendered in different forms, to aid with … conductivity enhancement...” (page 16, line 28). As the build material of the present invention is comparable to the third layer of Ryan, the conductivity enhancement would be present in the wrong material (functionalizing or build material), and not the support material. Consequently, Ryan does not teach conductance in the support material, as is required in the claim language (see claim 8).

The Examiner cites the combination of the following statements from Ryan to support the assertion that Ryan imparts color: “Preferably catalyst is coloured with use of suitable dyes and the like” (page 16, line 12), and “Precursor of functionalizing material comprising target material is preferably a fluid liquid or paste which may be contacted with and retained on the base and/or walls of a retaining feature...” (page 15, lines 10-12). A catalyst, as used here, is not support material, but is closest in relation to the build material of the present invention, as it is noted to be a precursor to functionalizing material. Even the treatment and function of the catalyst is closest to the build material in that it is deposited onto or retained by a retaining feature and thus does not offer any support, but is the material being supported. Furthermore, as the catalyst is the dyed or colored portion, and it is identified as a precursor to a functionalizing material, there is no suggestion that once the functionalizing material is in place that any of the final materials would retain any color. Therefore, the dye used in the catalyst is not akin to colored support material and Ryan does not teach imparting color as a function of a support material.

Thus, Ryan does not teach all of the elements of claim 1. The support material of the present invention must offer an additional feature other than mere support when being utilized for that purpose. Further, some support material must remain with the finished product within the build material. The support material cited by the Examiner in the Ryan reference offers support only. Furthermore, additional items noted by the Examiner as imparting predetermined properties were not, in fact, properties of the support material.

Claims 11-20

Claims 11-20 were not reviewed or addressed in the Office Action of March 8, 2006. The Applicant believes that these claims are fit for allowance. Claims 12-20 depend from claim 11, which outlines a method for solid freeform fabrication of three-dimensional objects. The language of claim 11 has been amended similarly as with claim 1 to further point out that the predetermined property of the support material must be something other than support. The Ryan reference does not teach or suggest a support material that imparts a predetermined property that remains present within the three-dimensional object. As claims 1 and 11 both require a support material that imparts a predetermined property, both claims and all related dependent claims are thought to be proper for allowance. Consequently, Applicant requests review and allowance of claims 1-20.

In view of the foregoing, Applicants believe that claims 1-20 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Jeff Limon at (541) 715-5979 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 21st day of July, 2006.

Respectfully submitted,



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